



# Multicenter study of 19 aortopulmonary window parathyroid tumors: the challenge of embryologic origin

Submitted by Véronique Bourgeais on Wed, 06/24/2015 - 14:51

Titre	Multicenter study of 19 aortopulmonary window parathyroid tumors: the challenge of embryologic origin
Type de publication	Article de revue
Auteur	Arnault, Vincent [1], Beaulieu, Anthony [2], Lifante, Jean-Christophe [3], Serra, Antonio Sitges [4], Sebag, Frédéric [5], Mathonnet, Muriel [6], Hamy, Antoine [7], Meurisse, Michel [8], Carnaille, Bruno [9], Kraimps, Jean-Louis [10]
Pays	Etats-Unis
Editeur	Springer Verlag
Ville	New-York
Type	Article scientifique dans une revue à comité de lecture
Année	2010
Langue	Anglais
Date	Sept. 2010
Numéro	9
Pagination	2211-2216
Volume	34
Titre de la revue	World Journal of Surgery
ISSN	1432-2323
Mots-clés	Adenoma [11], Adolescent [12], Adult [13], Aged [14], Aged, 80 and over [15], Choristoma [16], Female [17], Humans [18], Male [19], Mediastinal Diseases [20], Middle Aged [21], Neck [22], Parathyroid Glands [23], Retrospective Studies [24], Young Adult [25]

## Background

Ectopic abnormal parathyroid glands are relatively common in the superior mediastinum but are rarely situated in the aortopulmonary window (APW). The embryological origin of these abnormal parathyroid glands is controversial. The purpose of this investigation was to investigate the embryological origin and the surgical management of abnormal parathyroid glands situated in the APW.

## Methods

The databases of patients operated on for primary, secondary, and tertiary hyperparathyroidism at eight European medical centers with a special interest in endocrine surgery were reviewed to identify those with APW adenomas. Demographic features, localization procedures, and perioperative and pathology findings were documented. The embryological origin was determined based on the number and position of identified parathyroid glands.

## Results

Nineteen (0.24%) APW parathyroid tumors were identified in 7,869 patients who underwent an operation for hyperparathyroidism (HPT) and 181 patients (2.3%) with mediastinal abnormal parathyroid glands. Ten patients had primary, eight had secondary, and one had tertiary HPT. Sixteen patients had undergone previous unsuccessful cervical exploration. In three patients, an APW adenoma was suspected by preoperative localization studies and was cured at the initial operation. Sixteen patients had persistent HPT of whom 15 were reoperated, resulting in 6 failures. Evaluation of 17 patients who had bilateral neck exploration allowed us to determine the most probable origin of the APW parathyroid tumors: 12 were supernumerary, 4 appeared to originate from a superior, and 1 from an inferior gland.

## Conclusions

Abnormal parathyroid glands situated in the APW are rare and usually identified after an unsuccessful cervical exploration. Preoperative imaging of the mediastinum and neck are essential. The origin of these ectopically situated tumors is probably, as suggested by our data, from a supernumerary fifth parathyroid gland or from abnormal migration of a superior parathyroid gland during the embryologic development.

Résumé en anglais

URL de la notice	<a href="http://okina.univ-angers.fr/publications/ua12953">http://okina.univ-angers.fr/publications/ua12953</a> [26]
DOI	10.1007/s00268-010-0622-1 [27]
Lien vers le document	<a href="http://dx.doi.org/10.1007/s00268-010-0622-1">http://dx.doi.org/10.1007/s00268-010-0622-1</a> [27]
Autre titre	World J Surg
Identifiant (ID) PubMed	20523997 [28]

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- [27] <http://dx.doi.org/10.1007/s00268-010-0622-1>
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Publié sur *Okina* (<http://okina.univ-angers.fr>)